



**NEPHCURE**<sup>®</sup>

Kidney International

Saving Kidneys • Saving Lives

# Nephrotic Syndrome Experiment

*Demonstration of Nephrotic Syndrome (NS)*

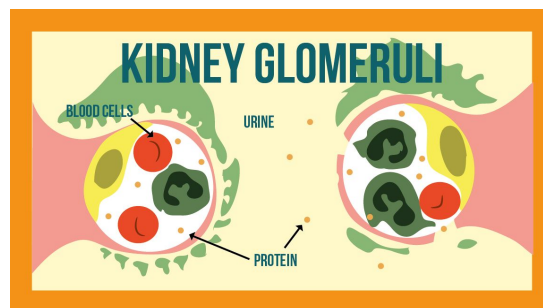
## Supplies

- Glass/Jug of water (Blood)
- Yellow Food Coloring (Toxins)
- Any color of bead (Albumin)
- Two Coffee Filters (Kidneys)
- Two Glasses/Clear Plastic Jars/Cups
- Kidney Model or Image with picture of Filtering Units (Ex. [Image](#))
- Age appropriate scissors



## Explanation

The kidney's function is to clean our blood. The kidneys have millions of filtering units called glomeruli that act kind of like a coffee filter. The kidney filters gather waste products and eliminate them in the form of urine but do not allow the good products like blood, immunoglobulins and protein (albumin) to pass through. Instead they send them back into the bloodstream. (Show diagram or model)

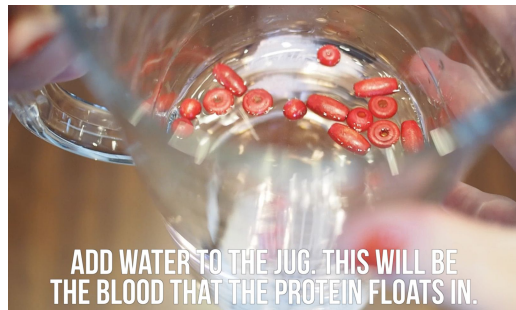
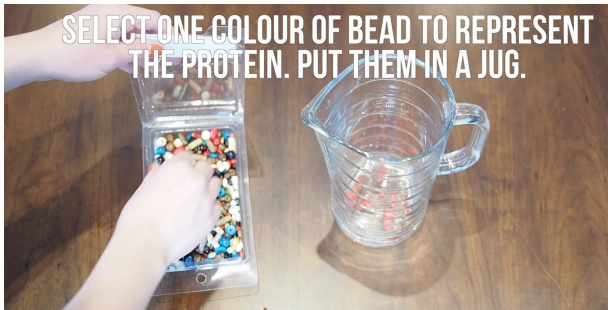


The purpose of this experiment is to give patients a visual demonstration of how their kidney's are not functioning properly.

---

## Part 1: Normal Kidney

1. Have a child take beads and put them into the jug of water (blood). The beads represent the good protein (albumin).



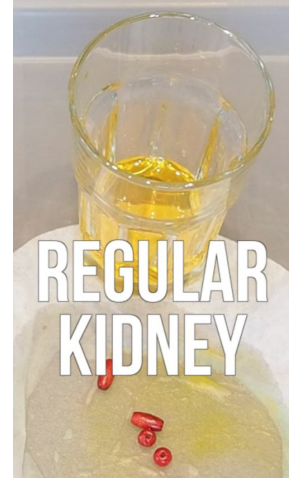
2. Then take a normal coffee filter and place it over a clear container.
3. Place a couple drops of yellow food coloring onto the center of the filter paper.
4. Pour the water and beads over the filter.



**Ask:** What do you see?

**Explain:** The water should turn yellow, as the toxins are removed in the urine, but there should be no good products like protein leaking out.

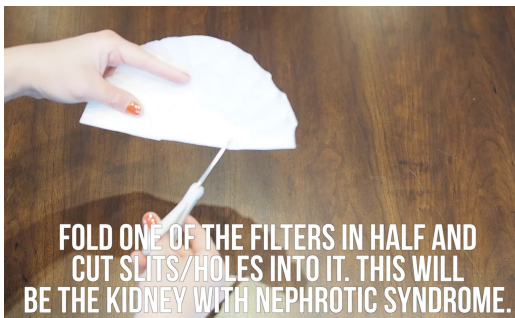
Once the kidney filters out the toxins, it returns the good products back into the blood where they are needed.



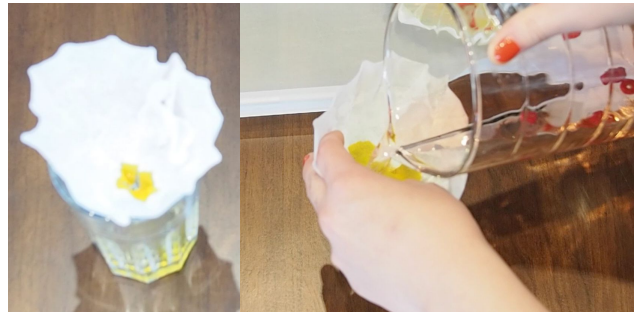
## Part 2: Kidney affected by Nephrotic Syndrome

Ask: In NS the filters (glomeruli) lose their shape. Now when blood passes through what happens?

1. Take another coffee filter and get them to cut holes (big enough for the beads to pass through).

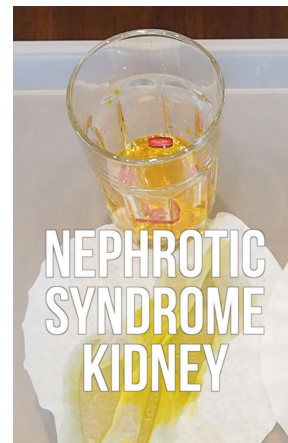


2. Place the filter over a clear container.
3. Place a couple drops of yellow food coloring onto the center of the filter paper.
4. Pour the water and beads over the filter.



Ask: What happened? Did the filter with holes work properly?

**Explain:** This is what happens in the kidneys of a person when they have NS. The protein leaks from the blood into the urine because the kidneys cannot filter it properly. When we don't have enough protein in our blood we become swollen, and the protein can cause foamy urine.



For more information on Nephrotic Syndrome Visit [www.nephcure.org](http://www.nephcure.org)

Click here for a video tutorial of this experiment: Link to Video: <https://nephcure.org/just-for-kids/>